

CHAPTER I

INTRODUCTION

1.1. Background

The increasing frequency of environmental disasters in Indonesia shows that there is a close relationship between human activities and environmental quality that is declining. Phenomena such as floods, landslides, and water pollution are not only triggered by natural factors, but are also influenced by human behavior in environmental management. This is in line with the findings of Erika & Gusmira (2024) and Ma'Ruf (2021) who emphasized that domestic waste management that is not optimal is one of the main causes of this problem. Uncontrolled waste disposal practices exacerbate environmental conditions and increase the potential for ecological disasters, as stated by Wiradimadja et al. (2023). Thus, it can be concluded that changes in human behavior in managing waste are an important step in reducing the risk of environmental damage.

Efforts to overcome environmental problems need to be focused on forming environmental care characters from an early age. Environmental education is a strategic means to instill awareness and responsibility for nature to the younger generation. This is supported by research by van de Wetering et al. (2022) which shows that environmental education is able to improve children's understanding while encouraging pro-environmental behavior. In addition, Ardoin & Bowers (2020) also emphasized that nature-based learning experiences contribute to the development of children's environmental, cognitive, and social-emotional literacy. Therefore, it can be concluded that environmental education from an early age is an important foundation in forming sustainable behavior.

Early childhood characters that are still in the developmental stage provide great opportunities for instilling positive values. At the age of 6–7 years, children experience rapid development in cognitive, social, and moral aspects so that they can easily receive educational stimuli. This is reinforced by research by Black et al. (2017) who stated that the age of 0–8 years is a critical period of brain development that is greatly influenced by learning experiences. In addition, Rahman et al. (2023) found that educational activities such as reading stories and experiential learning are able to improve children's cognitive development and social values. Thus, it can be concluded that the right learning approach at this age greatly determines the formation of children's character in the

future. During this period of character formation, children can learn well when they can 'experience' a lesson themselves. Research by (Chen et al., 2024) proves that learning through hands-on exploration is very effective in helping children understand lessons more deeply. They need to see, feel, and understand firsthand how an action can have consequences. For example, they will understand the importance of caring for plants better if they can see firsthand how they thrive after being watered, or conversely, wither because they are not cared for. Unfortunately, in a limited school environment, it is not always possible to provide this kind of hands-on experience consistently. This is where interactive animation comes in as a solution that bridges theory and practice. Through interesting stories, children can 'feel' the experience of protecting the environment without having to leave class. They can choose to water the plants or leave them in the story, and then see firsthand the consequences. Thus, interactive animation is the right bridge to provide children with a memorable and immersive learning experience about the environment.

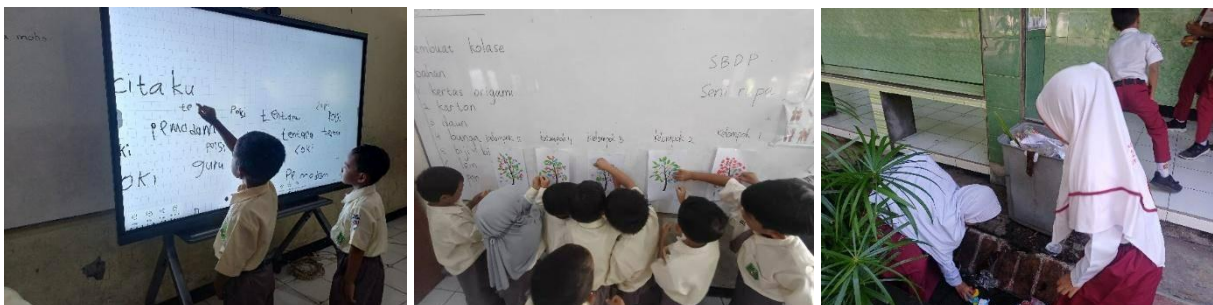


Figure 1.1 Documentation of Observation of Activities of Children Aged 6-7 Years
(Source: Personal Documentation)

Real conditions in the field show that the formation of environmentally caring behavior in children still requires continuous habituation. The results of interviews with grade 1 teachers and direct observations at SDN Bareng II Jombang on November 03-05, 2025 show that children aged 6-7 years have an active character, are easily interested in new things, and enjoy doing activities together. They seem enthusiastic when engaging in activities that involve interaction and cooperation. However, on the other hand, discipline and concern for the environment are still not formed consistently. The teacher said that simple behaviors such as throwing garbage in its place, tidying up things after use, or maintaining the cleanliness of the classroom are still often done because of reminders from teachers, not on the child's personal awareness. This shows that the value of caring for the environment in early grade children is still at the habituation stage and has not been fully embedded in children's minds. Therefore, learning media is needed that not only

conveys messages verbally, but also is able to present repeated, fun, and meaningful learning experiences so that the value of environmental care can be embedded more naturally in children's daily lives.

The use of interesting learning media is one of the solutions to increase the effectiveness of value instilling in children. Animated videos have been proven to be able to increase children's involvement and understanding in the learning process. Research by Hidayati et al. (2024) shows that animated video media has a high feasibility level with media expert assessments of 83.5%, material experts of 85%, and product trials reaching 96%. In addition, the use of animation also increases the enthusiasm and ease of students in understanding the material presented. Thus, it can be concluded that animation media is an effective means to instill character values in early childhood.

The integration of local cultural values in education is also a relevant approach to strengthen children's understanding. Local wisdom provides a context that is close to daily life so that the values taught are easier to understand. This is supported by Miranda et al. (2025) who state that the integration of cultural values in learning is able to foster positive character in children. In addition, the philosophy of *Memayu Hayuning Bawana* as explained by Putri & Lestari (2025) teaches the importance of maintaining balance and harmony in life. Therefore, it can be concluded that the incorporation of local cultural values in education can strengthen the internalization of the character of caring for the environment.

The philosophy of *Memayu Hayuning Bawana* contains relevant values in the formation of environmental care behavior. This concept emphasizes the balance of the relationship between man and God, fellow humans, and nature. Nugroho (2019) explained that values such as *Eling lan Waspada*, *Karyenak Tyasing Sesama*, *Sepi ing Pamrih Rame ing Gawe*, *Tepo Seliro*, and *Bisa Rumangsa* can feel like a guideline in behavior. These values encourage awareness, empathy, cooperation, and responsibility for the environment. Thus, it can be concluded that this philosophy can be used as a foundation in environment-based character education.

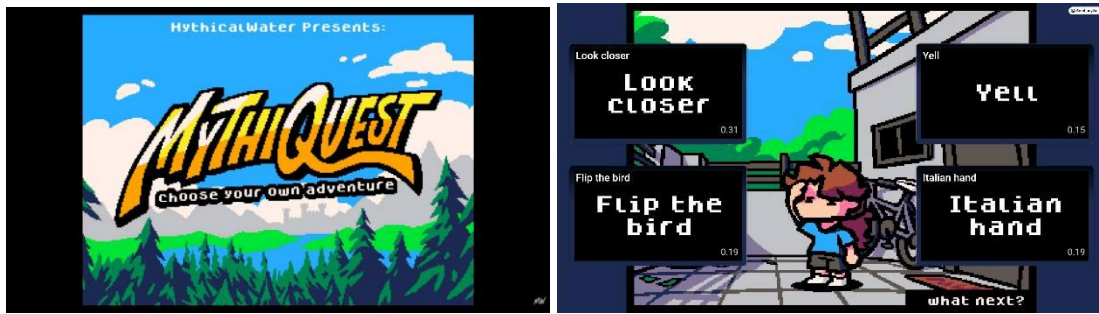


Figure 1.2 MythiQuest Interactive Animated Video Choose Your Own Adventure

(Source: https://www.youtube.com/watch?v=A4Efy_b7FMc, accessed on 02/04/2026)

More than just a passive impression and inspired by one of the interactive animation videos on Youtube titled MythiQuest, the interactive animation of the Choose Your Own Adventure (CYOA) model allows children to be directly involved in the story by becoming a decision maker. Each option they click on will immediately show the consequences that occur on the screen. The feasibility of the CYOA model as a learning strategy for early childhood is supported by the characteristics of their cognitive development that are in the concrete operational stage. In this phase, children learn most effectively when they can directly observe the cause-and-effect relationship of their actions. The branching structure in CYOA allows that every decision made by the child will be immediately followed by obvious visual consequences. Research by Young (2022) and Author (2025) reinforces showing that this kind of interactive model not only improves engagement and memory retention, but also significantly trains children's critical thinking skills, moral decision-making, and empathy. In other words, the CYOA model does not just teach what is right and wrong, but guides children to understand why an action has a positive or negative impact on themselves and the surrounding environment, which is in line with the reflective spirit in the Independent Curriculum.

Research by Kartini et al. (2025) shows that animation that integrates local wisdom not only increases learning motivation, but also strengthens cultural identity and instills positive character values such as cooperation and responsibility. Thus, interactive animation not only functions as an entertainment medium, but also becomes an effective bridge that transforms the noble values of *Memayu Hayuning Bawana* into a contextual, participatory, and memorable learning experience for children.

Although various previous studies have proven the effectiveness of animation media in environmental education for children (Yang et al., 2022), innovations that specifically combine these two aspects are still rare. More specifically, research that develops an interactive animation of the CYOA model that adapts the values of the Javanese philosophy of *Memayu Hayuning Bawana* for children aged 6-7 years is still very limited, and it can even be said that there is no one yet. The majority of environmental animation media that exist today is still linear and one-way, so it does not provide space for children to explore the consequences of their choices. In addition, the cultural approach used tends to be general and has not touched the values of specific Javanese local wisdom such as *Memayu Hayuning Bawana*. Therefore, this research is here to fill this gap by offering an innovative learning medium that not only conveys environmental messages, but also trains critical thinking skills and moral decision-making through the exploration of the consequences of each choice in the story, as well as introducing the noble values of Javanese culture to the younger generation.

Based on the overall description above, the research on the development of interactive educational animation based on *Memayu Hayuning Bawana* is present as an innovative solution that answers three challenges at once: first, the need for a real and fun environmental education approach for early childhood; second, the importance of preserving local wisdom in the modern era; and third, the use of digital technology that is appropriate for character learning. The presence of this media is expected to be not only effective in fostering environmental care attitudes in children aged 6-7 years, but also to be a model that can be adapted for the development of other culture-based learning media. Thus, this research is expected to make a real contribution both practically to the world of basic education, and theoretically to the development of visual communication design science that is culturally and environmentally insightful, in line with the vision of the Independent Curriculum to create relevant and meaningful learning.

1.2. Problem Identification

Identification of problems is essential to formulate the direction of the research and demonstrate the urgency of the topic raised. Here is the identification of relevant issues based on the findings of the latest research:

- 1) Environmental education is abstract and instructional. Based on the results of interviews with grade 1 teachers and direct observations in the elementary school environment, it was

found that environmental education for children aged 6-7 years still faces a number of challenges. The teacher said that children are actually very enthusiastic and active, especially when learning involves joint activities and visual media. However, in daily practice, learning to care for the environment is still often conveyed through verbal directions and direct reminders, such as orders to dispose of garbage in its place, tidy up things, or maintain the cleanliness of the classroom. This instructional learning pattern makes children understand environmental messages in a limited and situational way, so that environmental care behavior has not been formed consistently and still depends on teacher supervision. These findings are in line with the research of Chen et al. (2024) and van de Wetering et al. (2022) who stated that abstract and command-oriented learning approaches are less effective in fostering environmental care, compared to contextual, exploratory, and reflective approaches.

- 2) The use of educational media based on local wisdom is not optimal. The results of observations show that cultural values and local wisdom that are actually close to children's lives have not been optimally utilized in learning. Teachers generally inculcate the value of cleanliness and environmental concern through verbal advice and routine activities, such as community service or class pickets, without the support of visual media that specifically elevates the local cultural context. In fact, children show a high interest in stories and visual figures that are close to their daily lives. This condition is in line with the findings of Kartini et al. (2025) which show that the use of educational media based on local wisdom in learning has not been developed optimally. Local cultural values are often conveyed conceptually and have not been packaged in the form of creative and contextual media with the world of children, so that their potential in instilling character values and concern for the environment has not been utilized to the fullest.
- 3) Limited innovations in interactive visual media in environmental education for children aged 6–7 years. Based on interviews, the teacher said that children were much more focused and enthusiastic when learning using visual media such as videos or animations, compared to lecture methods or writing on the board. However, the availability of interactive media that combines visual, story, and environmental care elements is still very limited, so learning tends to return to conventional methods. This shows that there is a gap between

children's learning needs and available learning media. These findings are in line with the research of Cash et al. (2025) which states that interactive digital media is able to increase children's cognitive and emotional engagement and help deliver educational messages more effectively and memorably.

1.3. Problem Formulation

Based on the above background, the formulation of the researcher's problem is: How to design an interactive story animation that adapts the values of the Javanese philosophy of *Memayu Hayuning Bawana* as a culturally charged educational media to foster an attitude of caring for the environment in children aged 6–7 years?

1.4. Problem Limitations

To make the research more targeted and focused, here are the problem limits for this study:

- 1) The research subjects were limited to children aged 6-7 years who were in the 1st grade elementary education level at the Bareng II State Elementary School.
- 2) The media developed is only in the form of branched story animations that adapt the Javanese proverb *Memayu Hayuning Bawana* as the core of the message and value conveyed.
- 3) The scope of the material only includes the environmental values contained in the proverb *Memayu Hayuning Bawana* and does not address other aspects such as the broader spiritual, socio-cultural, or cosmological dimensions of the philosophy.
- 4) The Data Collection Method is limited to observation, simple questionnaires, analysis of teaching materials and interviews with students and teachers.
- 5) The aspects studied are limited to the influence or effectiveness of the animation in building an attitude of caring for the environment, including simple knowledge, attitudes, and behaviors related to the environment.

1.5. Purpose of Design

Based on the problem identification points that have been described, the following are the objectives of designing environmental education animations for children aged 6-7 years:

- 1) Develop a contextual, exploratory, and reflective approach to environmental education through visual-narrative presentation in animation, so that children can understand the

meaning of environmental care behavior in a more concrete and fun way, as well as form consistent behaviors in daily life.

- 2) Presenting educational media based on local wisdom, by adapting the Javanese philosophy of *Memayu Hayuning Bawana* so that cultural values and ecological messages are conveyed in a relevant, simple, and easily understood manner by children aged 6-7 years.
- 3) Develop interactive visual media innovations in the form of animations that are designed to be interesting, participatory, and in accordance with the characteristics and preferences of children aged 6–7 years, so that they are more active and emotionally and cognitively involved in environment-themed learning.

1.6. Benefits of Design Results

- 1) Benefits for Researchers:
 - a. Provide practical experience in designing educational animation media based on local wisdom and in accordance with the characteristics of early childhood development.
 - b. Adding academic insight into the integration of local cultural values into modern learning media, especially in the context of environmental education.
 - c. Become a scientific contribution in the form of design works as well as research that can be used as a reference for further research related to culture-based educational animation.
- 2) Benefits for Students (Children Aged 6–7 Years):
 - a. Help children understand the importance of maintaining cleanliness and environmental sustainability in a fun, engaging, and easy-to-understand way.
 - b. Fostering an attitude of caring for the environment from an early age by utilizing visual media that is close to the world of children.
 - c. Providing alternative learning media that can increase imagination, creativity, and positive character formation.
- 3) Benefits for the Community/Parents:
 - a. Providing media that parents can use to assist children in understanding the value of caring for the environment through stories that are relevant to local culture.

- b. Encourage family involvement in environmental education, so that the messages children get from animation can be amplified at home and in the community.
- c. Helping to preserve Javanese cultural values, especially the proverb *Memayu Hayuning Bawana*, so that it remains known and relevant to the younger generation.

1.7. Design Framework

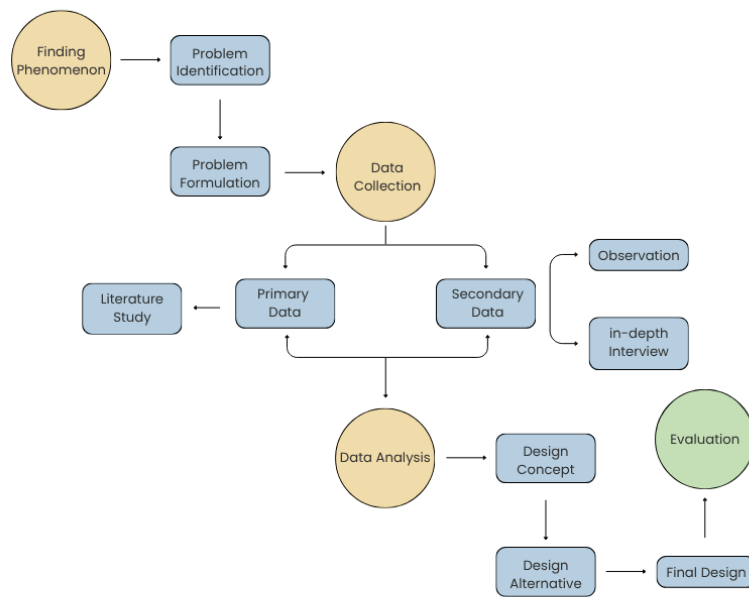


Figure 1.3 Design Framework
(Source: Personal Documentation)